



## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2002P16503WO	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/DE2003/002957	International filing date (day/month/year) 05 September 2003 (05.09.2003)	Priority date (day/month/year) 09 October 2002 (09.10.2002)
International Patent Classification (IPC) or national classification and IPC H03K 17/06		
Applicant	SIEMENS AKTIENGESELLSCHAFT	

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I  Basis of the report
- II  Priority
- III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

Date of submission of the demand 07 May 2004 (07.05.2004)	Date of completion of this report 07 February 05 07 February 2005 (07.02.05)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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International application No.

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## I. Basis of the report

1. This report has been drawn on the basis of (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

the international application as originally filed.

the description, pages 1-12, as originally filed,  
pages \_\_\_\_\_, filed with the demand,  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

the claims, Nos. 1-10, as originally filed,  
Nos. \_\_\_\_\_, as amended under Article 19,  
Nos. \_\_\_\_\_, filed with the demand,  
Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

the drawings, sheets/fig 1/4-4/4, as originally filed,  
sheets/fig \_\_\_\_\_, filed with the demand,  
sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

2. The amendments have resulted in the cancellation of:

the description, pages \_\_\_\_\_

the claims, Nos. \_\_\_\_\_

the drawings, sheets/fig \_\_\_\_\_

3.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

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## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	2, 4-10	YES
	Claims	1, 3	NO
Inventive step (IS)	Claims	2, 5-7, 10	YES
	Claims	1, 3, 4, 8, 9	NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

## 2. Citations and explanations

## 1. Reference is made to the following document:

D1: WO 00/79681 A (LUTRON ELECTRONICS CO)

28 December 2000 (2000-12-28)

2. Document D1 discloses (the references between parentheses relate to said document) a device (figure 2) and a corresponding method for switching a semiconductor power switch, said power switch (26) being configured with two semiconductors (MOSFET 26A and 26B) connected in series, the resistance of the breaker gap of the semiconductor power switch being controlled by means of a control voltage (output of gate drive circuit 24) in such a way that the power dissipation of the power switch does not exceed a predetermined setpoint (page 12, line 10 to page 13, line 8), the absolute value (figure 8B: voltage at the input of the integrator 40) of the reference-potential-specific differential voltage being derived from the differential voltage between the power switch connections (figures 8A, 8B and 8C); a time-variable reference voltage (page 12, lines 18-25:  $V_{TH(VAR)}$ ) corresponding to a constant

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breaking capacity being determined, for the charge reversal, from the resistance of the breaker gap and the maximum power of the semiconductor switch and stored;

said reference voltage ( $V_{TH(VAR)}$ ) being used as a reference variable for controlling the differential voltage during charge reversal (page 16, line 22 to page 17, line 30), and the controlled variable acting as a control signal (figure 7: output of threshold detector 42) for generating the control voltage (output of gate drive circuit 24).

Thus, the subject matter of claims 1 and 3 lacks novelty over the disclosure of document D1 (PCT Article 33(2)).

3. The subject matter of claims 4, 8 and 9 differs from the disclosure of D1 in that a charge pump is provided for generating the control voltage for the semiconductor switch. This feature is a conventional measure. For a person skilled in the art, the incorporation of said measure into the device described in document D1 would be an obvious and routine technical approach to controlling the semiconductor switches 26A and 26B.

Thus, the subject matter of claims 4, 8 and 9 does not involve an inventive step (PCT Article 33(3)).

4. The combination of features according to dependent claims 2, 5-7 and 10 is not known from the available prior art, nor is it rendered obvious thereby.

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Claims 2, 5-7 and 10 consequently satisfy the requirements of the PCT in respect of novelty and inventive step.